

# ABSTRACT OF THE DISCLOSURE

A memory cell array is constructed by two- dimensionally arranging a plurality of memory cells each composed of a magnetoresistive element, in a row and column directions. Write word lines are provided along the row direction of the memory cell array. Write bit lines are provided along the column direction of the memory cell array. To write data, a pulse-like write current is applied to an appropriate word and bit lines to generate magnetic fields in the column and row directions. A combined magnetic field of the magnetic fields in the column and row directions is applied to a memory cell to write data. A control circuit controls the pulse width of the pulse-like write current applied to the word and bit lines so that the pulse width has a predetermined temperature dependence.